ENERGY PERFORMANCE CONTRACTING FREQUENTLY ASKED QUESTIONS

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Q1: How is an energy performance contract different from a standard equipment specification and bid project?

A1: An energy performance contract relies on the technical expertise of an energy service company (ESCO) to design and build a comprehensive and creative technical solution. Also, with an energy performance contract you buy a guaranteed performance result, not just new equipment. These contracts contain a guarantee of avoided energy and operating costs, along with guarantees of environmental comfort parameters, such as temperature, humidity, and carbon dioxide levels. Specifically, they provide compliance with applicable ASHRAE and IES standards.

Q2: How is an ESCO different from a standard architectural/engineering firm?

A2: An ESCO must financially guarantee energy and operating cost savings and measure project performance results over time. The ESCO assumes a financial risk that the project will produce the promised savings performance. Also, the ESCO typically provides a broader range of customer services, like measurement and verification of cost savings and commissioning of project equipment and systems. It provides more comprehensive engineering analyses of energy, water, and maintenance cost savings opportunities. It also provides assistance in providing financing for projects. Part of the turnkey approach is to provide on-site construction management services, as well as comprehensive post-construction training and maintenance services.

Q3: Why is a comprehensive project preferable to single measure projects?

A3: A comprehensive approach maximizes the capture of savings opportunities available from a specific building or set of buildings. It minimizes the ratio of project management costs to the savings produced from the project. It also provides financial leverage to do more expensive individual measures that might otherwise not be economical to do on a stand-alone basis. A comprehensive project allows the measures with shorter payback periods to subsidize those with longer paybacks. A common error is for a facility

to do only the shorter payback measures first and postpone more expensive upgrades. The agency has then lost the opportunity to maximize both energy and cost savings.

Q4: Why not just implement these comprehensive efficiency projects with our own technical staff and capital funds?

A4: Many public agencies do not have adequate capital funds appropriated to address many of their capital equipment replacement needs. They also may not have enough staff or the appropriate technical expertise to manage these complex projects in-house. There may be little incentive for in-house staff to accept the risk of project non-performance or financially guarantee the results of the project's performance. Agency staff may not have the expertise to measure and verify savings or commission the equipment. The traditional capital budget process may take as long as five years or more to do a project that an ESCO could deliver in less than two years. The savings opportunities that are lost by waiting three extra years or more for capital funds to implement efficiency projects creates a huge cost of delay.

Q5: What exactly is the cost of delay for a comprehensive energy efficiency project that could be implemented using an energy performance contract?

A5: The immediate access to cost-effective tax exempt financing allows agencies to pay for capital projects without using capital appropriations. Savings from comprehensive energy efficiency projects occur over time, irrespective of how the agency pays for the project. By deferring the implementation date of a project for years at a time, the lost savings that would have occurred had that project been implemented earlier represent the cost of delay. The federal government found, in a study performed by Oakridge National Laboratories, that the typical federal project funded through the appropriations process took five years to complete, compared to two years for the energy performance contracts implemented in federal facilities. The average duration over which the cost of delay accumulated was approximately three years. The value of these lost energy savings was so large that even a few months of delay eliminated any financial advantage of waiting until appropriated funds were available.

Q6: If our agency has been doing small efficiency projects for many years, haven't we already picked the "low-hanging fruit" of these savings and eliminated the opportunity for a comprehensive energy efficiency project?

A6: While this may be true in some cases, many owners are finding that even though they have spent hundreds of thousands or even millions of dollars over the last 10-15 years on energy efficiency projects, allowing an ESCO to comprehensively evaluate their facilities often results in their finding large untapped savings opportunities. One reason for this is the continual evolution of energy efficiency technologies. Lighting technologies have improved dramatically in the last five years. Also, the technology of direct digital control systems has dramatically improved and the opportunities to save energy, especially in larger buildings with larger equipment loads, may allow these new controls to provide economically feasible savings. It is recommended that all facilities be evaluated against an energy use index (EUI) of BTU's per square foot in order to determine their relative efficiency compared to similar types of buildings. The cost for fossil fuels -- natural gas, oil and coal -- has begun to increase in the last few years at a dramatic rate. Projects that may not have been economically attractive five years ago may be feasible today due to the higher cost of fossil fuels.

Q7: How do I evaluate whether my facility is a good candidate for an energy performance contract?

A7: Two indexes that can be used to quickly evaluate the size of an efficiency opportunity are the dollar costs spent for energy per square foot, and the building's energy consumption measured in BTU's per square foot. Also, equipment near the end of its useful life, which has very high maintenance and repair costs, indicates the potential for significant operating cost savings. If there are significant problems with the operational control of building comfort, this provides another opportunity to create value by dramatically improving indoor environmental quality. Due to the long-term nature of energy performance contracts, it is important that the agency have a long-term plan to use the building in the future. The State of Michigan Energy Office offers a performance contract feasibility study service to state agencies. Contact Tom Krupiarz, 517.241.6184.

Q8: What is the risk to my agency that the ESCO will miss their savings guarantee?

A8: Experience in the industry, especially in the last 10 years, shows that most ESCOs achieve 98 percent or more of their total savings guarantees. Most companies also have a substantial internal reserve fund to cover any savings guarantee shortfalls. For the rare project that misses its savings guarantee, ESCOs promptly reimburse their customers for the savings shortfall. Sound project design, installation, commissioning, and

performance monitoring are the most cost-effective methods to deliver promised project performance.

Q9: What are the primary reasons offered for not using energy performance contracting to fund energy efficiency projects?

A9: Some people prefer low-bid procurement as a strategy to keep their costs low; unfortunately, this approach seldom minimizes life-cycle costs. Some believe that savings may be too difficult or too expensive to measure. Innovations in metering technology and refinements in savings measurement and verification methods have decreased the costs and increased the accuracy of savings measurement. Some building operators believe that they will lose operating control of their facilities with an energy performance contract. Building operators retain the right and responsibility to maintain operational control of their facilities, but they should be accountable for the consequences of their operational decisions. Energy performance contracts are specifically designed to recognize the partnership of the building owner and the ESCO in achieving mutual goals for reduced operating costs and improved indoor environmental quality. Some managers believe that appropriated capital improvement funds are preferable to tax-exempt lease financing of projects. Whether capital funds are available from taxes or bonds, they still create an obligation to collect tax revenues to pay project costs. One significant benefit of energy performance contracting is that it uses revenues from operating cost savings to pay for the costs of capital improvement projects. Many building managers recognize the benefits of EPC, but have trouble finding the time to implement a project at their facility. Many states have created dedicated in-house technical assistance resources for energy performance contracting or used program consultants to help agencies implement programs. The MI Department of Management & Budget, Acquisition Services, coordinates contract review teams for state agencies.

Q10: What are the main benefits of energy performance contracting projects?

A10: The most obvious economic benefits are energy and maintenance cost savings. However, modernization and replacement of aging capital equipment is probably an even more important project driver. Significant improvement in the indoor environmental quality resulting from better control of temperature, humidity, and ventilation is another benefit. Preserving scarce capital funds for priority projects that do not produce significant operating cost savings is an additional and important financial benefit.

Q11: What are the primary process benefits of using an ESCO to implement energy efficiency projects?

A11: Using the design-build approach creates a mini-design competition between proposers, which results in more flexibility in defining the project scope. Ready access to project financing dramatically speeds up project implementation. The ability to select equipment and services based upon their quality and value rather than low-bidder status is a significant advantage. Having a single provider design a comprehensive and creative technical solution provides single point accountability for project performance and reduces administrative costs compared to piecemeal implementation of project components.

Q12: Can an energy performance contract help my buildings earn an ENERGY STAR or LEED certification?

A12: Many ESCOs have energy staffs that are LEED certified and are familiar with the EPA's ENERGY STAR label program. They welcome the opportunity to create additional benefits for building owners. The economic benefits for human health and productivity from better thermal, visual, and acoustic comfort and better indoor air quality can be worth 10 times as much as the annual utility cost savings. Properly measuring these benefits could lead to larger investments in improving indoor environmental quality. By reducing utility consumption of fossil fuels and electricity, energy performance contracting projects significantly reduce air pollution

Q13: What factors should an agency consider when planning an energy performance contract?

A13: The agency staff should determine whether modernizing facility infrastructure or generating excess utility cost savings is the primary focus. They should also decide what operational and maintenance or avoided capital cost savings they are willing to count for purposes of measuring the project's economic benefits. They should determine the target indoor environmental quality standards that they would like the project to deliver and identify any specific high priority equipment replacements that they would like the ESCO to include in the project

Q14: What key elements should be included in an RFP for an energy performance contract?

A14: Well-defined evaluation criteria are the essence of a best-value RFP. A clear description of the procurement process and schedule is critical to creating credibility for a project. Providing reasonable technical building

profile data on the energy characteristics of your project facility assists ESCOs in evaluating the economic feasibility of your project. Specific goals you would like to achieve for this project should be identified in the RFP. The RFP should also describe an evaluation process that is objective, clear, fair, efficient, and effective. If ESCOs know that proposals will be evaluated on their merits, they will be highly motivated to provide high quality proposals. The MI Department of Management & Budget, Acquisition Services provides assistance to state agencies that wish to solicit bids for an energy performance contract. Please call Jeff White, Acquisition Services, 269.373.0305.

Q15: What can I do to improve the energy performance contracting process and outcome for my agency project?

A15: Develop a partnership ethic that emphasizes cooperation and clear understanding of each party's roles and responsibilities. Full and timely communication between all relevant agency and ESCO staff is crucial to project success. Keep good records of revisions to the project scope as the project evolves so no one is surprised at the final project scope. Realistically, budget for project commissioning, training and maintenance services. Making quality decisions at every step of the process will produce high quality project results. Create a clear and detailed plan for measuring project performance, including the role of agency staff in providing notice of building changes and utility data to the ESCO. Consistently apply the standards of realism and fairness as you negotiate the allocation of project responsibilities between the agency and the ESCO.

Q16: What can the state do to help individual agencies with the energy performance contracting process?

A16: The state has developed standardized energy performance contract procurement, evaluation, and contracting procedures and documents (e.g., RFP, audit contract, energy services agreement, evaluation forms, etc.). They can offer technical assistance and training to agency staff for the evaluation and negotiation of energy performance contracting projects. They can centralize and streamline the project review and approval process and allow the combining of appropriated capital funds with energy performance contracts to permit larger projects to be completed as a single transaction. For more information, contact Jeff White, DMB Acquisition Services, 269.373.0305.

Q17: How is an investment grade energy audit conducted by an ESCO different from a traditional energy savings analysis?

A17: Since an investment grade audit is the technical and economic foundation for a project that must produce guaranteed energy savings, it typically provides more detail on existing consumption levels, operating hours, and utility costs than a traditional energy analysis. It establishes and defines consumption and cost baselines for all operating costs savings. It also provides a description of the analysis methods, data logger measurements, savings calculations, and all the technical and economic assumptions used to calculate savings.

Q18: How large is the annual ESCO market?

A18: Based on a market research database maintained by Lawrence Berkeley National Laboratories of over 2,000 ESCO projects, the estimated annual market activity for ESCOs in 2002 was between $1 and $1.2 billion. Energy efficiency now provides 42 percent of all U.S. energy resources as measured by the change in energy use per dollar of the U.S. GDP between1975 and 2003. Rising wholesale energy prices and technical efficiency innovations continuously expand the amount of economically feasible energy efficiency resources. Over the last 30 years, energy efficiency has been the most important, cheapest, and fastest energy resource available to building managers.

Q19: What are the benefits of measuring and verifying project operating cost savings?

A19: Ongoing measurement of cost savings gives ESCOs real feedback on the performance of their design, installation, and operation strategies. Monitoring savings over the contract term improves both the persistence and reliability of savings achieved. Savings measurement and verification helps agencies document the economic benefits of their projects.

Q20: How is project commissioning relevant to energy performance contracting projects?

A20: Formal building commissioning is a systematic, interactive, and documented quality control process. Commissioning functionally tests and verifies the performance of a building system's design, installation, operation, and maintenance procedures against the customer's requirements specified in the project commissioning plan. Proper training of building operators and adequate documentation of the building's systems are also essential components of effective commissioning. The goal is to deliver verifiable building performance results which formal building commissioning shares with energy performance contracting.

Q21: Why has project commissioning for energy performance contracts become more important in recent years?

A21: There is much more diversity in the number of building systems that is increasingly specialized and integrated. Building automation systems have become much more complex and require effective calibration and programming. Building heating and cooling systems are being designed with less excess capacity which requires the systems to perform as designed. The economic value of health and productivity benefits from properly operating buildings has become a more prominent concern for building owners.

Q22: What are the main benefits of commissioning energy performance contracting projects?

A22: Project commissioning provides the knowledge to optimize building equipment system efficiency. During project construction, commissioning provides more complete communication between the ESCO and the agency. This results in shorter punch lists and fewer callbacks, as well as a faster and smoother equipment startup process. Commissioning extends the life of the equipment due to the verification of proper design and installation. It also prevents future equipment performance problems over time. The most valuable benefit from commissioning comes from better building control, which improves thermal comfort and indoor air quality.

Q23: What are the distinguishing qualities of the most innovative ESCOs?

A23: The most innovative ESCOs typically have very experienced energy engineers on their staff. They excel at providing creative and comprehensive design engineering solutions for projects. They are responsive to their customers and provide high quality customer services. They are committed to long-term, sustainable savings performance for their customers. They offer continuous project commissioning as a core competency. They have the technical breadth and depth to earn LEED accreditation for their clients and are sophisticated about measuring improvements in indoor environmental quality and accounting for the environmental benefits of reduced air pollution.

Q24: How could you calculate the economic value produced by an energy performance contract over a 10-year contract term?

A24: If we let X = average annual utility cost savings, then over 10 years the value of utility savings would be worth 10X. Benefits from improved employee health and productivity could easily be 10 times as much or 100X. The economic development benefits from the purchase of local

materials and services could be as large as 5X. Avoiding the cost of project delay could be worth 3X. Avoiding incremental utility systems line losses and capacity costs could be worth 3X. Operation and maintenance savings could conservatively be worth X. Avoided environmental compliance costs are variable, but can be very valuable for coal projects. Just the value of air emissions reductions alone could be worth 0.2X over the life of the project. The total economic benefits produced from an energy performance contract project could be as much as 122 times the annual utility cost savings.

Q25: What are the disadvantages of using appropriated capital budgets for energy efficiency projects?

A25: Capital funds are usually limited so energy efficiency projects face stiff competition from other budget priorities. The approval process for requesting new capital appropriations can be time consuming and expensive. If bonds are used to fund capital budgets, they may impact the debt ceiling or bond rating of the state. The crucial advantage of energy performance contracts is that they use operating cost savings from existing budgets to pay for the cost of capital projects.

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